TABLE 1
Off-Road Compression-Ignition Engine Standards
NMHC+NOx/CO/PM in g/hp-hr (g/kW-hr)
Standards Include an Emissions Durability Period[c,d,e]

hp (kw)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008+
<11 (8)[c,f]	See Table 2					7.8 (10.5) 6.0 (8.0) 0.75 (1.0)					5.6 (7.5) 6.0 (8.0) 0.60 (0.80)			
≥11 (8) <25 (19) [c,f]	See Table 2					7.1 (9.5) 4.9 (6.6) 0.60 (0.80)					5.6 (7.5) 4.9 (6.6) 0.60 (0.80)			
≥25 (19) <50 (37)[c,d]					7.1 (9.5) 4.1 (5.5) 0.60 (0.80)					5.6 (7.5) 4.1 (5.5) 0.45 (0.60)				
≥50 (37) <100 (75)[e]				N/A[a] 6.9 (9.2) N/A N/A						5.6 (7.5) 3.7 (5.0) 0.30 (0.40)				3.5 (4.7) 3.7 (5.0) (b)
≥100 (75) <175 (130) [e]			N/A[a] 6.9 (9.2) N/A N/A						4.9 (6.6) 3.7 (5.0) 0.22 (0.30)				3.0 (4.0) 3.7 (5.0) (b)	
≥175 (130) <300 (225) [e]		1.0 (1.3) [a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)							4.9 (6.6) 2.6 (3.5) 0.15 (0.20)			3.0 (4.0) 2.6 (3.5) (b)		
≥300 (225) <600 (450) [e]		1.0 (1.3)[a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)					4.8 (6.4) 2.6 (3.5) 0.15 (0.20)					3.0 (4.0)[g] 2.6 (3.5) (b)		
≥600 (450) <750 (560) [e]		1.0 (1.3)[a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)						4.8 (6.4) 2.6 (3.5) 0.15 (0.20)				3.0 (4.0)[g] 2.6 (3.5) (b)		
>750 (560) [e]						1.0 (1.3)[a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)						4.8 (6.4) 2.6 (3.5) 0.15 (0.20)		

(a) Standards given are HC/NOx/CO/PM in g/hp-hr (g/kW-hr).
(b) PM standards have not been specified.
(c) For all engines rated under 19 kW, and for constant speed engines rated under 37 kW with rated speeds greater than or equal to 3,000 rpm, the durability period and useful life is a period of 3,000 hours or five years of use, whichever first occurs.
(d) For all other engines rated at or above 19 kW and under 37 kW, the durability period and useful life is a period of 5,000 hours or seven years of use, whichever first occurs.
(e) For all engines rated at or above 37 kW, the durability period and useful life is a period of 8,000 hours of operation or ten years of use, whichever first occurs.
(f) Prior to the year 2000, these engines were classified as small off-road engines. Refer to the small off-road engine standards for model years prior to 2000.
(g) Manufacturers have agreed to comply with these standards by 2005.

TABLE 2
Small Off-Road Engines (< 25 HP) [d]
Class I,II: HC+NOx/CO/PM in g/hp-hr [a]
Class III-V: HC/NOx/CO/PM in g/hp-hr [a]

Engine Disp.	Engine Class	1995	1996[c]	1997 [c]	1998 [c]	1999 [c]
<20cc	III	220 4.0 600 N/A	220 4.0 600 N/A			
≥20cc <50cc	IV	180 4.0 600 N/A	180 4.0 600 N/A			
≥50cc <65cc	V	120 4.0 300 N/A	120 4.0 300 N/A			
≥65cc <225cc	I	12.0 300 0.9[b]	12.0 350 0.9[b]			
≥225cc	II	10.0 300 0.9[b]	10.0 350 0.9[b]			

a) The Executive Officer may allow gaseous-fueled (i.e., propane, natural gas) engine families, that satisfy the requirements of the regulations, to certify to either the hydrocarbon plus oxides of nitrogen or hydrocarbon emission standard, as applicable, on the basis of the non-methane hydrocarbon (NMHC) portion of the total hydrocarbon emissions.

b) Applicable to all diesel-cycle engines only.

c) Engines used exclusively in snowthrowers and ice augers need not certify to or comply with the HC and NOx standards or the crankcase requirements at the option of the manufacturer.

d) The 1995-1999 small off-road engine emission standards apply to diesel-cycle engines also. For the 2000 and later emission standards for diesel-cycle engines please see Table 1.

TABLE 3
Small Off-Road Engines (< 25 HP), Continued
HC+NOx/CO/PM in g/hp-hr (g/kW-hr)[f,g]

Engine Displacment	2000	2001	2002	2003	2004	2005	2006+
≤ 65cc	54 (72)[d] 400 (536) 1.5 (2.0) [EDP[a]]						
> 65cc - < 225cc Horizontal[e]	12.0 (16.1)[c] 350 (467) N/A		12.0 (16.1) 410 (549) N/A [EDP[b]]				
> 65cc - < 225cc Vertical[e]	12.0 (16.1)[c] 350 (467) N/A						12.0 (16.1) 410 (549) N/A [EDP[b]]
≥ 225 cc	10.0 (13.9)[c] 350 (467) N/A		9.0 (12.0) 410 (549) N/A [EDP[b]]				

a) Standard includes a manufacturer specified durability period of 50/125/300 hours.
b) Standard includes a manufacturer specified durability period of 125/250/500 hours.
c) No durability period required.
d) PM standards are applicable to two-stroke engines only.
e) Refers to orientation (axis) of the crankshaft design when in operation.
f) The Executive Officer may allow gaseous-fueled (i.e., propane, natural gas) engine families, that satisfy the requirements of the regulations, to certify to either the hydrocarbon plus oxides of nitrogen or hydrocarbon emission standard, as applicable, on the basis of the non-methane hydrocarbon (NMHC) portion of the total hydrocarbon emissions.
g) Engines used exclusively in snowthrowers and ice augers need not certify to or comply with the HC and NOx standards or the crankcase requirements at the option of the manufacturer.

TABLE 4
Large Spark-Ignition Engines (≥25 HP)
HC+NOx/CO in g/hp-hr (g/kW-hr)

Engine Disp.	2001	2002	2003	2004	2005	2006	2007+
≤ 1.0 liter		9.0 (12.0) 410 (459) [EDP[a]]					
> 1.0 liter	3.0 (4.0)[b,c] 37.0 (50.0)			3.0 (4.0) 37.0 (50.0) [EDP[d]]			3.0 (4.0) 37.0 (50.0) [EDP[e]]

a) Standard includes a durability period of 1000 hours/2 years.
b) A manufacturer must show that at least 25 percent of its California engine sales comply with the standards in 2001, 50 percent in 2002, 75 percent in 2003, and 100 percent in 2004 and beyond.
c) Standard does not include a durability period.
d) The standards for in-use compliance for engine families certified to the standards for model years 2004 through, and including, 2006 are 4.0 g/bhp-hr (5.4 g/kW-hr) hydrocarbon plus oxides of nitrogen and 50.0 g/bhp-hr (67.0 g/kW-hr) carbon monoxide, with a useful life of 5000 hours or 7 years and a durability period of 3500 hours or 5years.
e) Standard includes a durability period of 5000 hours/7 years.

TABLE 5
Spark-Ignition Marine Engines
HC+Nox Standard/Maximum Family Emission Limit (in g/kW-hr)[a]

P_{tx}	2001	2004	2008+
< 4.3 kW	81.00 N/A	64.80 80	30.00 44
≥ 4.3 kW	(0.25 x (151 x 557/$P_{tx}^{0.9}$)) + 6.0 N/A	(0.20 x (151 x 557/$P_{tx}^{0.9}$)) + 4.8 80	(0.09 x (151 x 557/$P_{tx}^{0.9}$)) + 2.1 44

P_{tx} is the average power in kW (sales-weighted) of the total number of spark-ignition marine engines produced for sale in California in model year x. Power outputs of outboard engines are determined separately from those of personal watercraft engines.

a) These standards include a useful life requirement of 9 years for personal watercraft engines, and 16 years for outboard engines.

TABLE 6
Off-Highway Recreational Vehicles and Engines[a]
HC[b]/NOx/CO/PM in g/km

Engine	1997	1998	1999+
Off-Road Motorcycles and All-Terrain Vehicles[c] with Engines Greater Than 90cc	1.2 N/A 15.0 N/A		
Off-Road Motorcycles and All-Terrain Vehicles[c] with Engines 90cc or Less			1.2 N/A 15.0 N/A
Golf Carts in Federal Ozone Non-Attainment Areas	0.0 0.0 0.0 0.0		

a) Vehicles and engines that do not meet the applicable emission standards may be certified subject to use restrictions.
b) Compliance with the HC emission standard to be applied as a corporate average.
c) All-terrain vehicles may alternatively comply with exhaust emission standards equivalent to the off-road motorcycle and all-terrain vehicle standard using the utility test procedures set forth in CCR, Title 13, section 2403, and the incorporated document California Exhaust Standards and Test Procedures for 1995 and Later Small Off-Road Engines.